



ELSEVIER

Labour Economics 5 (1998) 1–24

LABOUR
ECONOMICS

War of the models: Which labour market institutions for the 21st century? ¹

Richard B. Freeman ^{a,b,*}

^a Centre for Economic Performance, London School of Economics, Houghton Street, London WC2A 2AE, UK

^b Harvard University and NBER, Cambridge, MA, USA

Revised 13 November 1997

JEL classification: P5; P1; J00; J5; J6; J3; B2; B4

Keywords: Labour market institutions; Collective bargaining; Inequality; Unemployment; Capitalist systems; Comparative economic systems

1. Introduction

I was preparing this lecture in the normal way while my seven year old was watching professional wrestling on the television. I looked over at the TV and—

Announcer: Ladies and gentlemen, messieurs et mesdames, signori y signorinas, herrens und frauleins, what you have all been waiting for: The Main Event—The Battle Royale of Modern Economies: the first ever WAR OF THE MODELS. Fought under Adam Smith rules. No holds barred competition. Get pinned with high unemployment, sluggish GDP growth, inflation, or stagnant real wages, and you're out. Managers and seconds have unlimited access to modern technologies—econometrics, game theory, computable general equilibrium models, natural experiments, computerised data sets with millions of observations, case studies, whatever. But remember the War of the Models is not decided by

* Corresponding author.

¹ This is the text of the Adam Smith Lecture given at the EALE Meetings in Aarhus, Denmark, on September 27, 1997. The Adam Smith Lecture is a joint initiative of *Labour Economics* and the European Association of Labour Economists.

fancy footwork and high-powered technique: the Model has to survive in the squared circle of business and labour.

The TV show was more interesting than the opening section of my lecture—and not only to my seven year old. Battle Royale of Economic Models? Who-ee! This is the kind of economics that drew me and maybe you into the field. Big economics. The issues that matter for our well-being.

Announcer: Enough for the preliminaries. Let's introduce the contestants and get down to the evening's action.

The first contestant, from North America with a GNP of over 7 trillion dollars, the greatest inequality and biggest prison population in the advanced world: flexible, with limited unionisation, a minimal welfare state, phenomenal hours worked. Lean and mean—a real fighting machine, with Texas boots and California Cool. Let's hear it for the red, white and blue—American Model.

The second contestant, from the European Union, the proud holder of a mighty export performance, boasts near zero inflation, lots of vacation time, and klatches of social partners talking over beer and sausages. Maybe that's why there's some unemployment flab showing over those Alpine shorts—the Rhineland Model.

The third contestant, skiing down the aisle from the land of the Vikings. Conqueror of poverty and inequality, with cradle-to-grave welfare and active labour market programs, paid for by the highest taxes in the world. A bit chastened by unemployment and government deficits, but still the Social Democrats' dream—the Nordic Model.

Next—where is he? Ah, yes. Arriving just in time from the airport in a Japanese import, with lifetime employment, job rotation, big (er— maybe not quite as big as before) banks, and the highest consumer prices this side of Belgium. A tough warrior who had the American champion wobbling—please no Samurai swords or Fugi fish in the ring—the Yokozuno of economies—the Japanese Model.

And now—Madam, what do think you are doing? Please, you're supposed to be watching the sick economy of Europe from the sidelines. No longer sick? My oh my. Stepping into the ring with the big CBI and TUC Love tank top, a New Labour Is Business umbrella, the favourite of foreign capital, managed by you-know-who, the British Bulldog. A civilised cousin, I believe, to the mighty Americans.

But that is not all.

Clogging along—do you have to make so much noise with those wooden shoes?—after a long bout of the Dutch Disease, the only part-time economy in the world, the new champion of the continent, with a finger in the dike of unemployment, the Tulip Kid—the Polder Model.

Next, Tyger, Tyger, burning bright in the darkness of the Night. Sorry, you have to leave the animal outside the ring. Our viewers insist on some labour standards—or is it animal rights that excites them? Friends, from the other side of the globe, with modest inequality and massive exports—a bit frayed financially but still growing—the Asian Tiger Model.

That should do it. You—kid—you can't go in the ring with the big boys. What? You've done better than Mrs. T without any of her reforms? Growing faster than New Zealand, who did everything according to T and faster than Japan without any Fuji Fish? Very well, from the Green Isle, lavishly funded by the EU—the Celtic Warrior, the Irish tax haven—er the Leprechaun Model!

2. The war of the models is about labour markets

So there they are—today's contestants in the war of the models that forms the core of debate over current economic policy. As you know, the War of the Models is not just media hype. Read any official white paper on the world's economic situation, listen to the EU or national governments, eavesdrop at the Jobs Summit, and the talk is all about these models. Has the US really found the right model for today's world? Should EU economies copy the American model? Or can a few minor tweaks here and there restore full employment? Does the Dutch success mean that work-sharing of a particular form can really work? Will a bit of Gaelic and Guinness do the trick?

What is striking to a labour economist about the War of the Models is that for the first time in a long time the big issues in economic policy are about the labour market. It was not always so. Not so long ago the macro-economists were the big guys on the block. They had solutions to our economic woes, Keynesian fine-tuning or a fixed expansion of the money supply or whatever. They even thought there was a well-defined natural rate of unemployment. Recall the blazing days of yesteryear when the high-powered Keynesians squashed the motley structuralists who claimed that unemployment had something to do with labour market mismatches. And then read the McKinsey Global Institute (1997) report on Germany and France, guided by an Advisory Committee of leading macro economists.² The McKinsey Report is all about institutional structure and micro-economics, not macropolicy. Macro-economists parading as institutional experts? Where are those occupational licensing laws and rigidities when we need them?

In any case, for better or worse, for right or wrong, labour economics and the institutions and rules that govern labour markets have moved from the periphery to the centre of economic discourse. Issues that we study—wage differentials and earnings inequality; the structure of unemployment and unemployment insurance; centralised and decentralised collective bargaining; labour mobility; modes of compensation—lie at the heart of current thinking about economic policy.

Our issues have even moved centre stage in business school thinking about management practices. In the knowledge economy, people matter. Success comes

² Robert Solow, Olivier Blanchard, Edmund Malinvaud, and Hans Werner-Sinn are listed as the guiding lights to the report.

by empowering workers and motivating them to cooperate with management to their mutual advantage through incentive contracts and learning organisations. At least that's what the business school gurus teach when they ballyhoo the high performance workplace.

It's flattering to be in centre court. But the notion that solutions lie with us is also a bit frightening. We always knew that prescription exceeded knowledge in macro-economics (how could those guys even think they know much of anything with just a few time series observations?). Perhaps a decade from now the same will prove true of the prescriptions for labour market institutions that abound throughout the world (how can we know much of anything with just a few country observations?).

Are the institutions and rules of the workplace that important in determining outcomes? How much do we really know about how labour institutions function? Will the War of the Models produce long-term winners, or will today's champ be tomorrow's chump? What are the big unanswered questions about labour institutions and how might we try to answer them?

3. What do we know?

The starting point for the War of the Models are two facts.

First, outcomes in advanced capitalist economies have differed markedly in the past few decades along several important dimensions: rates of growth of GDP per capita; the extent of income inequality; employment and unemployment; the composition of compensation; changes in real earnings. While living standards have generally converged among advanced countries, the level and rates of change in outcomes still vary enough to put the question of who's doing better and why on the policy and research table. How come, Monsieur Ministere, Ireland has doubled its GDP per capita since 1979 while France has only increased its GDP per capita by a quarter? How come Spain has had 20 plus percent unemployment for nearly two decades while unemployment in Japan is so low? Why has Sweden fallen so sharply in per capita GDP rankings?

Second, advanced capitalist economies have noticeably different labour (and other) institutions. What do I mean by an institution? Viewed broadly, an institution is the set of implicit or explicit rules, norms, or contractual arrangements, and organisations that govern market transactions. It is what differentiates real economies from the Walrasian auctioneer model. Some theorists (Coase, 1992; Williamson, 1985) stress the role of institutions as efficient solutions to economic problems. Others (North, 1991) stress the role of institutions as constraints on behaviour to reduce uncertainty. Whatever your preferred precise definition, you surely know what I mean by labour institutions: the unions and works councils, employee involvement committees, government regulations and agencies, firms and employer associations that abound in modern economies and

that influence decisions regarding work life. Labour-relations experts often call labour institutions ‘industrial relations systems’, whose constituent elements are the actors, rules, and ideologies (Dunlop, 1958; Dunlop et al., 1960).

While I do not know a study that shows that labour institutions differ more among advanced countries than other economic norms, organisations, etc., the institutions and rules of the labour market are highly country-specific, and thus plausible contenders for explaining at least some of the differences in outcomes across countries.

Linking outcomes to institutions is, however, no easy task. We have three ways of studying how institutions affect outcomes, none of which is ideal.

Within a country, we can compare outcomes between workers covered by different labour institutions, when such intra-country differences exist. The virtue of this approach is that it holds fixed factors that affect an economy in its entirety. Making within-country comparisons of union and non-union workers is how economists study the effects of unions in countries where union and non-union arrangements coexist—primarily the Anglo–Saxon countries.³ Such comparisons allow us to measure differences between collectively bargained and individual/firm bargained outcomes, but do not necessarily identify the ‘true’ structural impact of the institutions.

One problem is the likely selectivity of workers into the union and nonunion sectors: workers unionise in response to workplace problems; and once in place, unions negotiate compensation packages that will create queues of job applicants and permit employers to cream the best. We have a bag of tools to correct for these problems, most notably longitudinal analyses that compare the same worker or workplace under union and non-union settings.⁴

A more difficult problem is that the union and non-union parts of the labour market can interact in diverse ways: union gains can spillover to non-union workers or can come at the expense of those workers. We have no accepted estimates of the magnitude or even the direction of these spillovers. The interaction between union and non-union sectors depends on a host of economic factors, including mobility of capital, whether unions are in sectors with high or low capital labour ratios, whether prices are domestically determined or set on world markets, as well as on the institutional features of markets.

When a country changes institutions, we can look at outcomes before and after the change. This is not perfect either. It is not perfect because we lack an observable counterfactual. Maybe the UK would have done better (worse) absent

³ The bible of union wage studies is H. Gregg Lewis’ *Unionism and Relative Wages in the United States* (Lewis, 1963). Freeman and Medoff (1984), *What Do Unions Do?* provides evidence on union effects on other outcomes as well. Mishel and Voos (1992), *Unions and Economic Competitiveness*, summarises many US studies.

⁴ See Freeman (1984).

Mrs. T's reforms. The implicit nonexperimental counterfactual that we usually apply is the assumption that things would have gone on unchanged (in level or rate of change) absent the specified reforms. But maybe that is not the correct counterfactual. Would British unions have behaved in the 1980s as they did in the 1970s without new labour legislation? Perhaps, but unions in many other countries changed behaviour on their own accord. And the policy issue is really not about how a given institutional change affects outcomes but whether some other institutional change might have done better, or worse.

Finally, we can compare countries in the same period of time. The US has full employment. It has huge inequalities in pay. Europe has a big unemployment problem. It has a compressed wage structure. Maybe there is a lesson there. But the US has also had stagnant real wages while Europe has had rising real wages. Maybe that's the real lesson. The general problem is that the number of institutions that differ among countries can be large, giving scope to diverse interpretations of which if any of the institutional differences explain the differences in outcomes that concern us. To test the effect of differences in wage structures and trends in real wages on employment requires more than a two area contrast. With other differences—regulations, unionisation, centralised bargaining—also 'in play', our ability to make inferences from cross-country comparisons is even more limited. The natural solution of adding more countries to a sample can rule out some explanations, but as one adds more countries to a comparative study, one invariably loses insight into each one and runs the risk of adding important differences in institutions with the expansion of the sample.

The problem of using cross-country comparisons to make inferences about the effect of institutions on outcomes is compounded by the possibility that institutions that work in one way in one country may work differently in another because the rest of the institutional structure differs. Enact a law on temporary contracts in Spain and you get lots of new entrants hired under those contracts. Enact a similar law in Germany, and firms continue to hire apprentices for permanent jobs. To the extent that *configurations* of institutions or policies matter, the proper comparison across countries is between entire models, not between particular features. It isn't the high inequality or the stagnant real wages or limited unionization or whatever that explains US employment performance, but all of these things interacting in a particular way.

In sum, determining how institutions affect outcomes is a tough business. It will provide us with lots of hard scientific work for quite some time.

The job gets even tougher when we move from analysis to prescription. As the experts, we have a responsibility to find ways to fix malfunctioning institutions and to devise yet better models. But even the most egotistical of us realises that we do not have the scientific knowledge we would like for diagnosis and prescription. Without controlled laboratory experiments, we will never have it. Being forced to rely on professional judgement when we lack the hard evidence is part of the social science territory. By asking the right questions and studying the evidence,

we can at the minimum learn enough to illuminate the contest in the Squared Circle more than the average screaming fan, or poll-watching politician.

Here is a list of eleven things that I think we do know that illuminates the War of the Models.

(1) **There Is No Law of One Institution: Capitalism Allows Variety.** The fact that in the war of the models the contenders have been around for a long time, sometimes doing better and sometimes doing worse, implies that capitalism permits considerable institutional variety. There is no law of one institution comparable to the law of one price (itself questionable outside of natural commodities, as trade economists have found studying purchasing power parity). The price system preserves institutional variety, just as it preserves variety in products. The fabled *race to the bottom*—social dumping—about which some economists and union leaders worry is largely a myth.⁵ A country that wants a labour institution that has the unintended consequence of lowering productivity can pay for it in one of three ways: workers can take lower pay; the exchange rate can depreciate; or consumers can pay a higher price for goods. It all amounts to the same thing: you take a lower real wage if you want some social arrangement that costs real resources. Any country that chooses to ‘buy’ some social welfare that lowers GDP can do so.⁶

(2) **Institutions Reduce the Dispersion of Earnings.** In countries with union and nonunion workplaces, inequalities are smaller in the union setting. Inequality declines among workers who shift from nonunion jobs to union jobs; and increases among workers who move in the other direction. Across countries, central bargaining narrows pay gaps, even though significant wage drift could potentially undo the centrally bargained compression of wages. And changes in institutions, be it declines in collective bargaining coverage as in the US or UK or the breakdown of centralised negotiations between the major union federation and major employer association, as in Sweden, or the end of the *Scala Mobile*, as in Italy, produce wider earnings distributions.⁷

What is true of collective bargaining holds for government-mandated wage payments and taxation as well. Whatever they do to employment, minimum-wage laws raise pay at the bottom of the distribution. Whatever its dead-weight loss,

⁵ The race to the bottom model posits that there is a huge competitive disadvantage to social regulations or institutions so that firms or countries are ‘forced’ to lower standards when they trade with countries having lower standards.

⁶ There is a big distinction between static and dynamic inefficiency costs. The case that ‘we’ are willing to sacrifice, say 1% of GDP to provide a higher social safety is easier to sustain than the case that we should sacrifice, say 0.5% of economic growth, as the latter cumulates over time to massive differences in real well-being. But this is still a matter of social trade-off.

⁷ For US studies, see Freeman (1982), Card (1996), DiNardo et al. (1996), Freeman (1996a). For some EU studies, see Hibbs (1990), Manacordo (1997), and the various chapters in Freeman and Katz (1995).

Table 1
Hourly earnings differentials for men, Sweden vs. United States 1989/91

	Earnings of 90th decile/earnings of 10th decile	Earnings of 10th decile/median earnings
<i>Men in United States</i>		
All men	5.53	0.39
Men of Swedish ancestry	5.05	0.41
<i>Men in Sweden</i>		
All men of Swedish ancestry	2.02	0.77
Non-Nordics in Sweden	1.85	0.74

Source: Bjorklund and Freeman (1997).

progressive income taxes generally produce more egalitarian earnings distributions.

Here is my favourite demonstration of the effect of institutions on the distribution of earnings. Consider the following experiment. Take thousands of male fetuses of Swedish ancestry and randomly send half to the US. Years later examine the earnings of the men that remained in Sweden and those that came to the US. Table 1 shows the closest I could come to this experiment: it gives the distribution of hourly pay of men both of whose parents are of Swedish ancestry born in Sweden and of men both of whose parents are of Swedish ancestry born in the US. The distribution of Swedes in the US looks like that of everyone else in the US—very unequal—not anything like that of Swedes in Sweden. You can repeat this ‘experiment’ with other countries and I will bet the house that you will get similar results. It’s the institutions, not the ethnic make-up of people that explains this difference in earnings distributions.

(3) **Institutional Arrangements Affect Work/NonWork Decisions.** Virtually every study in every country finds that one institution—the system of unemployment benefits, and related payments for not working—affect the rate of unemployment and spells of nonemployment. The duration of joblessness is longer the greater is the time for which workers are eligible for benefits. When eligibility for unemployment ends, there is invariably a spike in the job-finding rate, implying either that workers accelerated their search or accepted jobs that they had known about but previously viewed as below their reservation wages.⁸ The replacement rate—the degree to which benefits replace wages and salaries—has much less effect on unemployment. If we want to reduce unemployment insurance induced joblessness, we have a set of possible albeit imperfect reforms, ranging

⁸ See Katz and Meyer (1990) for the US. Bjorklund and Holmlund (1991) give evidence for Sweden, Atkinson and Micklewright (1991) provide a critical review of this entire area.

from giving bonuses to workers who find jobs before they use all of their benefits to paying firms for hiring people from the unemployment rolls. Still, differences in unemployment insurance does not come close to explaining differences between the US and EU in unemployment.

What is true about unemployment insurance systems holds also for sickness and disability pay and for retirement. When Sweden reformed its method for paying sick leave, by reducing the replacement rate, requiring employers to pay for the first two weeks of sickness, and adding a waiting period of one day before workers were eligible, absences due to sickness fall. Even more striking, the arrangements of retirement plans have produced huge country differences in work rates among older workers. The Swedish, Japanese, and American retirement systems give older workers greater incentives to work than the Belgian or Italian systems, and lo and behold employment rates for men 55–65 are much higher in the former than in the latter countries.⁹

Institutions that pay people not to work will in fact reduce work.

(4) Institutions Affect Company Performance. There is evidence that organisational factors affect company performance. Firms with employee participation, profit-sharing, or employee ownership seem to do a bit better than other firms.¹⁰ Many American managers believe that employee involvement programs are creating the firm of the future that will allow the American Model to lift Yokozuno in the air and send him crashing to the mat. Maybe, but other American managers believe in lean and mean and a host of other ways to reinvent/restructure/search for excellence to bring profits to their firm.

Private firms often have much better productivity than public sector firms, but the banking crises that hit so many countries show that private owners—backed implicitly or explicitly by governmental banking insurance—can make blunders of the type that dwarf the inefficiency of your local public agency. On the other hand, unions are not well suited for running firms as the failure of Histradut in Israel demonstrates. You need real owners. When the Airline Pilots Association and Machinists bought United Airlines in the US, they hired professional managers to act as managers. This created some management–labour conflict in a firm owned in large part by the union workers. But other firm institutions do not seem to greatly affect outcomes—vide worker representatives on boards of directors in Germany.

Fig. 1 gives an intriguing bit of evidence from the automobile industry that suggests that how a firm manages its work force and labour-management relations can greatly affect productivity. Who would have believed, in say the 1970s or 1980s, that in 1996 three of the five most productive plants in Europe would be in that fabled land of high productivity and union–management cooperation—the

⁹ See Gruber and Wise (1997).

¹⁰ See Blinder (1990); Kruse and Blasi (1995), OECD (1995).

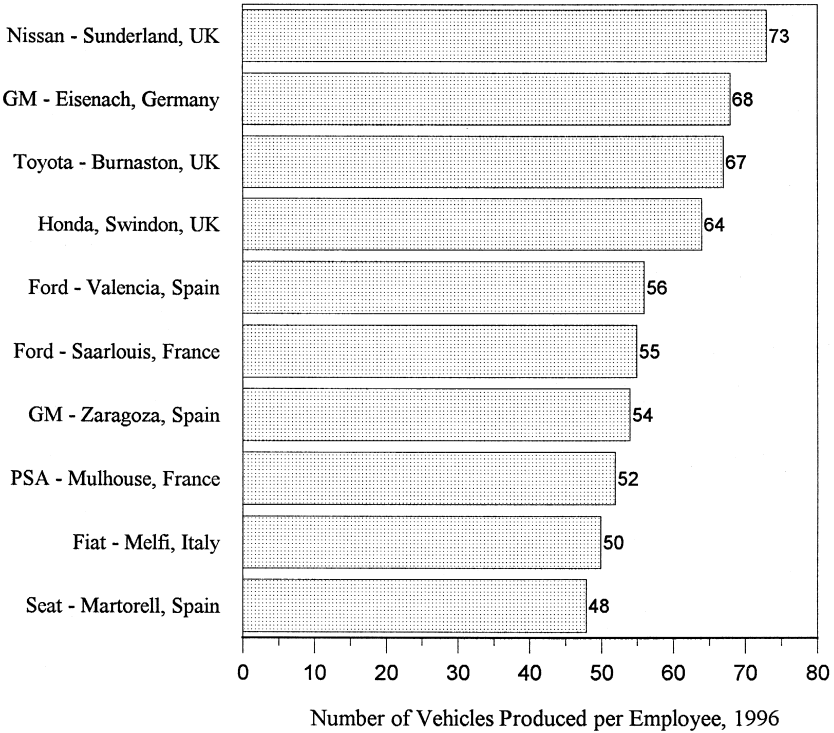


Fig. 1. Europe's most productive car plants. Note: Numbers are rounded. Sources: Simonian (1997) and EIU (1997a,b).

UK. The UK with three of the top five? And all of the top five managed by foreign firms? Intriguing, I do not know what these firms are doing right, but surely they are doing something different than others in the same sector that deserves detailed study.

Bottom line, private ownership with some participation by workers in decisions and with cooperative union–employer interactions seems to improve firm performance somewhat.

(5) **Institutions Affect Outcomes by Affecting Incentives.** Institutional arrangements operate by altering the incentives that induce workers and firms to make decisions. They do not operate by legislating or contracting deterministic outcomes. Even ‘hard’ rules (such as those that make some actions illegal) do not force people to behave in the desired way. Individuals weigh the benefits of breaking the rules against the risk that they will be caught and pay a penalty. Governments weigh the benefits of enforcement of regulations against the costs of enforcement. The grey economy, tax evasion, illegal immigration, wages below the minimum, unsafe working conditions, all result from people weighing alterna-

tive courses of action. So too does the response of workers to returns to school-going, or to forming or joining new businesses.

Given that institutions work through incentives, analyses of how institutions affect outcomes are predicated directly or indirectly on the magnitude of responses to incentives—the elasticities of supply and demand that we teach in Economics 1. From this perspective, neoclassical analysis focused largely on individual responses complements rather than competes with analyses of institutions. The more successful we are in determining individual responses to wage and other economic signals, the better equipped we will be to assess the link between institutions and outcomes.

Embarrassingly, the magnitude of the fundamental response elasticities are not well-determined, which gives scope to considerable controversy in labour economics and elsewhere in the profession about the likely effects of institutional changes. There are economists who believe that elasticities of response are usually big. I have called these folks Big Responders (BR).¹¹ Present a BR with a change in price or wage—for instance a mandated increase in the minimum wage—and his prior is that there will be a large response in quantities. BRs feel comfortable with perfect competition, Hecksher–Ohlin trade models; factor price equalisation; large responses in effort and hours to marginal taxes; welfare traps; arbitrage of financial opportunities across national lines; large employment losses to administered wages. Forced to choose between a first-approximation economic model with an infinite elasticity of response and one with zero elasticity, the BR economist opts for infinity: “in the long run, there are many substitutes, new competitors, suppliers, etc.” But there are other economists who believe that responses to price incentives are generally small—Small Responders (SR). Present an SR with a change in price or wage, and his prior is that quantities will not change much. SRs feel comfortable with input–output analysis, imperfect competition, factor content analyses of trade, the correlation of investment and savings across countries, backward-bending supply curves, and the persistence of economic rents. Forced to choose between a first-approximation model with an infinite or zero elasticity of response, the SR economist opts for zero: “in the real world, costs of adjustment are large, uncertainty slows responses, habits change gradually, etc.”

(6) Elasticities of Labour Supply Are Often Large. Much labour economics evidence suggests that the Big Response economists have it right when it comes to labour supply. Labour supply elasticities seem to be reasonably large along a variety of dimensions, as pointed out on work/nonwork decisions in claim (3) above. Workers respond to incentives by investing in skills, switching jobs, altering hours worked or labour participation, staying on or leaving unemployment benefit or other schemes. As wage inequality has risen in the US so too has inequality in time worked. A natural interpretation is that workers are altering

¹¹ Freeman (1995a).

labour supply decisions in response to incentives: the high paid whose wages are rising increase their hours worked while the low paid whose wages are falling reduce their hours worked.¹² Institutional arrangements which affect supply prices and the incentives facing workers can have a sizeable impact on behaviour.

There is also evidence that young persons choose to invest in skills and education in response to economic incentives with fairly high elasticities of response.¹³ The incentives are, to be sure, not simply wage incentives: high youth-unemployment rates can induce large enrollments in universities, as in Spain; and tuition and scholarships and availability of educational institutions near one's residence are also important. There is even evidence that the supply of young persons to criminal activities is highly elastic: the massive incarceration of criminals in the US has had a much smaller effect on crime than criminologists ever expected, seemingly because the economic payoff was sufficient to induce replacements in crime for the incarcerated.¹⁴

(7) Human Psychology Matters. By stressing the importance of basic supply behaviour in institutional analysis, I do not mean to downplay the fact that the labour market is not a bourse, and that economic decisions are made in an uncertain environment. From Adam Smith on, economists have recognised that the social context affects the labour market. Today, studies of firm behaviour, labour supply, crime, and even finance have documented that we cannot understand important aspects of economies, much less of labour markets, without taking into account that human behaviour goes beyond optimising a well-defined maximand under specified constraints. Fairness and trust appear frequently in business discussions; and depend critically on the context or framing of issues.¹⁵ The economics of information highlights the fact that neither employees nor employers has full information about the landscape of profits or utility on which they operate. And, most impressively, behavioural finance has brought to the fore major anomalies in what should be the most perfect of markets.¹⁶

One implication of the finding that behaviour matters is that the implicit contracts or social norms that each model generates may ultimately be as or more important for long run success as their ability to fulfil economic short-run goals—a point Assar Lindbeck has made forcefully with respect to the Nordic welfare state (Lindbeck, 1997). If large welfare states affect the underlying attitudes of citizens toward work, then there may be long run consequences of such arrangements for labour supply that are not apparent in the short term. The

¹² Juhn et al. (1991) and Freeman (1995b).

¹³ See Edin and Holmlund (1995), Kim and Topel (1995), Freeman (1971), and Manski and Wise (1983) for some of this evidence.

¹⁴ Freeman (1996b) and Grogger (1994).

¹⁵ Kahneman et al. (1986).

¹⁶ Thaler (1993).

large welfare state then does well for a while, but eventually suffers because citizens change their responses to welfare state work incentives.

(8) Elasticities of Demand for Labour Are Often Small: Shifts in Demand Dominate. Small Response economists have a strong case when it comes to labour demand, particularly low wage workers. As the recent US minimum wage debate made clear, we have difficulty finding the expected negative effect of changes in minimum wages on employment. The biggest estimates of labour demand elasticities for these workers are around -0.10 , and several well-structured studies find little or no employment response.¹⁷ If careful studies found negligible demand elasticities only for the US minimum, we might dismiss the finding as a *curiosum*. After all, the US minimum is off the map of earnings distributions for almost any other advanced country. But employer responses to wage subsidies or reductions in social charges in continental Europe have hardly been overwhelming; and comparisons between the US, Canada, and France show little relation between changes in the structure of wages and changes in employment.¹⁸

Elasticities of labour demand tend to be larger when one looks at other groups of workers. Even here, however, our best estimates do not show huge elasticities of substitution between different types of workers. The estimates of Katz and Murphy (1992) of the effect of changes in the supply of college graduates relative to high school graduates on relative wages are -0.71 , which implies an elasticity of substitution of -1.4 . Estimates for the effect of changes in the supply of high school dropouts to more educated workers on relative wages are -0.32 , which implies a higher elasticity of substitution of 3.2 (Borjas et al., 1997). The full elasticity of demand—which includes the effect of wage costs on output has to be larger, but it is still unlikely to be huge given labour's share in the cost of production (including intermediate goods), save for particular homogenous traded goods sectors where the world price is fixed.

But simply because demand elasticities are not huge does not mean that demand forces are not critical in labour market outcomes. To the contrary, what matters a lot—the forcing variable—are shifts in demand curves. Our standard technique for estimating shifts—variants of input–output fixed requirements models—provides insight into how changes in the composition of sectors affects demand, but not into the shifts in technology that can alter relative demands, as they appear to have done in the 1980s and 1990s to the demand for highly educated compared to less educated labour.

(9) Institutions Do Not Affect Macro-Outcomes Consistently. We have not found consistent stable relations between institutions and macro-outcomes across countries. In the mid 1980s, the generalisation that seemed to fit the data was that

¹⁷ Card and Krueger (1995). The Industrial and Labor Relations Review (1995) gives some flavour of the debate.

¹⁸ Card et al. (1996).

more centralised systems did better along several dimensions, such as inflation and unemployment.¹⁹ But by the early 1990s, it became clear that this generalisation did not hold, and analysts suggested that there was a U-shaped curve linking outcomes to centralisation: highly centralised countries produced similar outcomes to decentralised countries. The place not to be was in the middle of the hump.²⁰

Now the U-shaped generalisation seems outdated. As the *Employment Outlook* (OECD, 1995) makes clear, when the 1990s experience is included in the analysis and when one looks at several outcome measures “the U-shape hypothesis (that countries with intermediate levels of coordination or centralization in bargaining do poorly) simply does not stand up to the data” (p. 77). The Netherlands, which fit in the middle of several indices of centralised bargaining, has moved from disease to success, without changing its system of wage-determination or unionisation. Ireland, which maintains some industry-based wage-setting with a bit of national coordination is the fastest growing EU economy. Changes in economic performance aside, there are sufficient differences in the ranking of countries on centralized bargaining scales by analysts and changes in rankings over time to suggest that perhaps we need some more basic taxonomical research before trying to reach grand generalisations about the relation between institutions and outcomes from cross-country comparisons based on unidimensional indicators of labour institutions.

There is also a mixed bag of evidence that changes in institutions have produced the improved outcomes that reformers—be they from the Left or Right—have desired. Spain introduced temporary contracts in the 1980s with the hope of reducing unemployment. Spanish unemployment remains high and one can only hope that the 1997 changes will do more good than the earlier reforms. New Zealand went through a wrenching set of pro-market reforms. For years afterwards the *Economist* promised that next year those reforms would pay off. Shades of the long and variable lags for monetary policy. Finally it seems that next year has arrived, but maybe a different package of reforms would have reached the same results with less pain. And New Zealand has had nothing like the growth record of Ireland, which did not revolutionise its labour relations system nor even import Mrs. T for some lessons on how to shake up the Irish society.

The OECD review of the member countries’ experience in implementing the jobs strategy argues that reforms can be undertaken and can succeed.²¹ True, countries can alter their institutions. And true, some countries have done better than others in fighting unemployment and poverty. But the link between the reforms and the successes hardly fits the OECD *Jobs Study* recommendations. What the Netherlands and Ireland have done does not resemble what Norway or

¹⁹ Bruno and Sachs (1985).

²⁰ Calmfors and Driffill (1988) and Freeman (1988).

²¹ OECD (1997).

Austria have done, much less what the United Kingdom has done. Countries that have succeeded in improving their economic performance follow no consistent package of reforms. If you accept my first claim—that there is no law of one institution—this should come as no surprise. There is more than one road to Rome, and the road may depend on where you start.

Why have we not found stronger and more stable links between labour institutions and macro-outcomes?

One possibility is that the fault lies with us and our analytic tools. Some packages of institutional reforms work but we have been unable to construct the appropriate counter-factual to demonstrate this. We are after all talking about highly aggregate outcomes, which presumably depend on many factors, making it hard to determine what would have happened absent any particular reforms. Maybe the New Zealand package of reforms was just right for New Zealand and asking why Eire did so much better without such reforms is a misleading question.

Another possibility is that there may be no link between institutional changes and outcomes. Groups who argue that ‘reforms’ that benefit them are needed to resolve economic problems may simply be cloaking their desire for a bigger share of the pie behind a rhetoric of solving national problems. When the rich argue that tax cuts for the rich and wage or social benefit cuts for workers are the only way to cure the unemployment about which the rich care deeply, every economist’s eyebrows should rise.

Yet another possibility is that there are links between institutions and outcomes in particular periods of time, but these links change over time. We are, after all, not living in a comparative static world. The economic ring is a Red Queen world of coevolving economies, business strategies and institutions. Today’s favourite may fall, because his opponents have studied the films of the match and looked for new ways to get ahead. You have to run and innovate to keep in the same place.

Finally and most disconcerting to the jet set advisors who have solutions for every country’s problems, it may be that economies are like human bodies and react somewhat differently to the same medicine. The institutional change that works in, say, New Zealand, might fail utterly in say, Denmark, because the configurations differ, as pointed out earlier.

(10) **Small Differences Can Matter.** Compare two closely linked neighbouring areas, the US and Canada; Flanders and Holland; the UK and Eire, and you will find striking differences in some institutions and outcomes. US and Canadian laws governing union formation differ a bit. Several Canadian provinces use card checks to register unions. If a union obtains the signatures of, say 60% of workers, on cards authorising the union to represent them, the firm is obligated to recognise the union. The US requires a secret ballot election to determine union recognition. This aside, the two countries have the same companies, the same basic standard of living, the same people (all right—Canadians are a bit nicer and some parler le francais). Union wage differentials for Canada are close to those in the US, which puts them among the highest in the advanced world.

With so much similarity, why is union density about twice as high in Canada as in the US? The reason seems to be small differences in labour laws that give firms in the US an institutional mechanism for fighting union organising drives that is not available to Canadian firms. In Canada, when enough workers sign cards, the workplace is organised, and the firm obligated to bargain. In the US, when 60% of workers sign union cards, the battle just begins. The company will call in union-busting experts and run an aggressive campaign to reduce union support. Even if the union wins, the company may opt for a sufficiently tough bargaining position that the union has to strike to make any gains for workers. The company can then bring in permanent replacements.²²

The US–Canada contrast is, moreover, not unique. Similar small differences affect unionisation rates in EU countries. In Belgium unions are involved in distributing unemployment benefits whereas they play no such role in the Netherlands. That difference helps explain the higher unionisation rate in Flanders than in Holland, though other factors undoubtedly also play a role. Mrs. T’s legislation to curb union excesses in the UK helps account for the drop in union density in the UK compared to Ireland.²³ The legislation is ‘small’ in the sense that it did not seek to change the essential features of British labour relations, but to make incremental improvements in union democracy and to limit union power in ways that the unions have come to accept as basically helpful to them in ‘getting their act together’.

(11) Some Institutional Solutions Don’t Work. Random assignment social experiments (analysed with care because no random assignment of people can mimic a true controlled laboratory experiment) have shown us that one favourite solution to labour market problems—training and other active labour market measures—have at best only modest effects on outcomes.²⁴ Government training tends to have lower returns than private training, in part because government programs get the hard cases in tough times.²⁵ What is true at the disaggregate level of the experiments, moreover, is even more true for the entire labour market. Active labour market measures may help some people and meet modest benefit–cost tests, but they are no panacea to unemployment. The case in point are Sweden’s active labour market programs, heralded as a huge weapon against unemployment, put to the test in the 1990s, and found wanting.

From a variety of experiences we also know that another widely discussed solution to labour market problems—work-sharing—can at best improve employment a bit, and at worse will cut employment. There is nothing in theory that says work-sharing should fail: its efficacy depends on production functions, worker

²² Riddell (1993).

²³ Freeman and Pelletier (1990).

²⁴ Heckman (1993). For Sweden’s training programs, see Forslund and Krueger (1997).

²⁵ Lynch (1994).

supply behaviour, and the way it affects the cost of labour. In the US workers simply don't want cuts in weekly earnings, so it is dead on arrival. In the EU the schemes that succeed do so at the company level, where jobs may be saved but not created. In the aggregate, German and French efforts to create employment at the national level through work-sharing have not succeeded.²⁶ But maybe the Dutch have put the pieces together in the right way—by combining work-sharing with substantial wage moderation and various welfare state reforms.

4. What we need to know and how might we learn it

There's lots we need to know about how the various models work if we are to judge the War of the Models and suggest ways to improve the functioning of labour institutions.

* We need detailed studies of particular cases, guided by well-specified counterfactuals: how the Dutch have done their social consensus thing while corporatist arrangements broke down in Sweden; how employer associations attract and hold members in Europe while they cannot do so in the US; and so on. There can be no progress in understanding the War of the Models without a lot of specific knowledge about particular cases. And, as the Polder, Leprechaun, and Nordic entrants into the War illustrate, we can learn as much from the small economies as from the large economies.

* We need better estimates of elasticities, and in particular whether supply and demand elasticities are similar or different across countries or in different settings, and why?

* We need studies of organisations below the country level to test our theories of how various models work. As carefully as we may do our cross-country comparisons, there will never be enough country experiences to give us large enough sample sizes for anyone to be all that confident about how institutions affect outcomes. The logical candidates for study are companies, which have widely varying internal labour and personnel systems.

* We need to understand why institutions alter the distribution of earnings but have less well-defined effects on many other economic outcomes. The Coase Theorem offers one possible explanation. To the extent that labour institutions affect property rights—for instance, who owns the job—they will affect distribution. But as long as private parties can make side deals, they should be able to attain efficiency. If this is correct, then we need to find out the constraints or costs of side-arrangements in the different models.

* We need to understand the policies through which institutions affect outcomes, and the reasons why institutions change policies over time. Some union

²⁶ Freeman (1998) and Hunt (1996).

movements negotiate real wage moderation or cuts to create jobs. Others do not. The simplest unidirectional model for how institutions affect outcomes is: institutions → policies → incentives → individual behaviour → outcomes. If unions, firms, and governments change policies as they learn what works and what doesn't in a changing environment, we have another possible explanation for the absence of a clear link between institutions and many outcomes: the institutions are making different policy decisions, shades of the Lucas Critique.

* We need to know much more about the way labour institutions fit together as systems. While industrial relations experts have recognised at least since John Dunlop's *Industrial Relations System* (Dunlop, 1958) that unions, management, and government agencies interact in complex systemic ways, they have developed little theory of how a labour system fits together. A system exists when the contribution of one institution to outcomes depends on the configuration of other institutions. Analysts of business organisations stress the complementarity among labour and other practices.²⁷ If you have job rotation, company unions,²⁸ and job posting and bidding for promotions, seniority pay policies may be productive whereas absent the other institutions, they may be less productive or counter-productive.²⁹

* We need to know the extent to which particular institutions or policies catalyse other changes or are themselves malleable to other institutions. An institution that catalyses others exerts great leverage on an entire model. Change it and you turn Rhineland into Bulldog or Nordic into American. Some American managers fear that if the US introduced mandatory health and safety committees as part of a reformed occupational health and safety system, this would be the 'camel's nose into the tent' of their union-free environment. The committees would embolden workers to form aggressive unions and change the entire US labour relations system. But this does not seem to be the experience in the EU, with works councils: management plays a major role in the councils in France while unions dominate them in Germany; they exist in some form in Italy, in a different form in Belgium, and so on.³⁰

The preceding list of what we need to know is surely incomplete. But even so it is a tall order and one that the usual tools of our trade—detailed empirical analyses—cannot by themselves fulfil. Our empirical tools are wonderful for ceteris paribus problems, but many issues regarding labour institutions are mutatus mutandis problems. Lots of interrelated changes with no empirical counterfactuals. This implies that if we are to make progress, we need something more in our tool bag. Game theory? A language and framework, but not sufficiently

²⁷ Milgrom and Roberts (1995).

²⁸ Freeman (1996a).

²⁹ Ichniowski et al. (1997) give the strongest empirical evidence. Milgrom and Roberts (1995) develop the mathematical framework.

³⁰ Rogers and Streeck (1995).

specific. General equilibrium? Too general and static. Then what? In my course at Harvard, I would invariably end with frustrated hand-waving, with no real direction to suggest. But now . . .

4.1. Tools for the next century?

There are a new set of theoretic and empirical tools that seem suited for the problem of analysing labour systems and the War of the Models. The tools range from theoretical simulations of nonlinear dynamic systems to a theoretic data-mining. Complexity analyses. Neural networks. Data-mining for knowledge discovery. Landscape models. Artificial agent simulated societies. Chaos theory. Complex adaptive systems. Nonparametric statistical tools of diverse shapes and sizes. Cellular automata. The hills are alive with the sound of new tools and jargon. Some of the tools are associated with the Santa Fe Institute.³¹ Others are not.

What is the key behind these tools?

The unifying principle is that they analyse complex patterns of behaviour or data using modern computers to the fullest extent possible. In the theoretical arena, they offer a way of modelling or exploring alternative economic models through simulations that were beyond our capabilities just a few years ago. In the empirical area, they offer nonparametric statistical models for dealing with nonlinearities and discovering patterns in large data sets.

Will they solve the problem of the War of the Models? Of course not. Computer tools do not solve anything. You need ideas and data. Tom Schelling sat in his living room and used coins to simulate models of segregation that remains an exemplar of self-organising behaviour long before the catch-phrase (Schelling, 1978). The only tool he needed was his brain. The *Limits of Growth* folk (Meadows and Meadows) threw masses of undigested and often erroneous data into a huge nonlinear simulation that merely proved the GIGO (garbage in/garbage out) theorem. In the battle over NAFTA in the US, computable general equilibrium models seemed to give whatever the analyst wanted, rather than suggesting new insights about the effects of trade.

Still, the new tools can sharpen our thinking about competing models of capitalism and allow us to assess alternative theories or explanations about which we could previously only hand wave. Say, we have evidence that people care deeply about fairness in the market and are more willing to form a group or support state interventions when they see market outcomes as unfair. Say, we have evidence that firms oppose unions strongly unless the unions can organise enough competitors to take wages out of competition, and that workers are more likely to

³¹ The Santa Fe Institute is the main world centre in the study of complexity and computer-based modelling of various sorts. The Institute has a remarkable ability to gain the attention of popular science writers and the press.

join unions when their neighbours are joining. Say, we have evidence that political parties respond to employee discontent by enacting redistributive legislation. We have all the elements for an artificial agent computer model in which inequalities that workers judge as unfair produce either spurts in unionisation or state interventions in the distribution of earnings, or maybe both.

Perhaps most important, the new tools make demands on our knowledge that should spur us to greater efforts to measure key parameters and relations. If we believe that there are important synergies among institutions, and we are forced to simulate those interactions on a computer rather than simply talk about them, we will quickly find out which parameters or relations are critical to outcomes, and hopefully, try to figure out ways to gather that evidence. We may not be able to apply our normal empirical tools to entire models, but those tools should help us identify some of the key parts of the models.

Will the new tools and jargon become the economic analysis of the 21st century? In a field where high tech beats low tech no matter what its payoff in understanding real issues, I'd be shocked if this didn't happen. But I think that these tools can really help us understand the War of the Models. Imagine having an empirically validated artificial agent-based simulation model of the French economy and introducing work-sharing to see under what conditions this might turn France into the Netherlands; or introducing two or three features of the US model to see if a bit more deregulation might spark a new French Miracle—the Asterix Model.

Finishing the lecture with a sip of my favourite magic potion, I glanced once again at the TV and—

5. A model for the future?

Announcer: *Well, that about does it, wrestling fans. More spine-tingling thrills than the World Cup. The memories of a lifetime. Who will ever forget Yokozuna bear-hugging the Leprechaun with that massive flow of capital or Rhineland tripping over the British pound? And Polder bopping the Viking with the social consensus tulips? Monetarism vs. Fiscal Policy? Balanced vs. unbalanced growth? Little Milton against the Keynesian Kid? Great matches, but not in the same league as the War of the Models.*

Communism vs. Capitalism? A biggie if there ever was one. Imagine a world run by grey-faced apparachniks—but talk about Paper Tigers—Comrade Com-misar had loser written all over him from day one.

Tonight, we saw the best against the best. We saw the American model wobble a bit at the opening bell, then come on awesomely, only to tire toward the end—poverty saps even the best of us. We saw the mighty Yokozuno team up with the British Bulldog to—

Wait a moment. Do you hear the throbbing New Wave music? See the strobe lights flashing in the Arena. Can it be? A New Model coming down the aisle to the cheers of the crowd? But the match is over. Who is this stranger from parts unknown?

Not much regulation. The American model in disguise? But no court suits by workers to protect their rights on the job. Employee committees enforcing workplace rules. A big stock exchange largely owned by worker pension funds. Shades of Peter Drucker, is it pension fund capitalism? Shades of Martin Weitzman, lots of enterprises with profit-sharing! Normal employees with stock options? Come off it, CEOs will never allow regular employees to be paid like that. Many enterprises owned by employees? Will it fly? How on earth did they pay for the shares? Wage cuts? The unions will never allow that. A small welfare state, but no poverty? Impossible. Workers making all sorts of decisions. Owning a piece of the Market? Who is this New Model?

*I'm going into the centre ring to find out. What do you call yourself? Shared—what? Speak louder, it's hard to hear over the din of the crowd. **Shared Capitalism?** Managed by the Invisible Hand. Sounds weird. The socialists will turn over in their graves. What? Some of them are in your corner. Then the conservatives will oppose you with every dollar, pound, guilder, krone, mark—er Euro they have in their offshore accounts. What? Some of them are in your corner. Strange bedfellows, indeed.*

*I can hardly believe it. Just when we thought we'd seen the ultimate contest: a new and bigger battle royale on the horizon. Stay tuned, wrestling fans. I promise you, *War of the Models II* will be even more exciting than *War of the Models I*. Pay for view only. Consult your local labour economist. Call your cable company NOW.*

Acknowledgements

We gratefully acknowledge financial support from Dubois, Chartered Accountants, Amsterdam.

References

- Atkinson, T., Micklewright, J., 1991. Unemployment compensation and labor market transitions: a critical review. *J. Econ. Literature* 29, 1679–1727.
- Bjorklund, A., Holmlund, B., 1991. The economics of unemployment insurance: The case of Sweden. In: Bjorklund, A., Haveman, R., Hollister, R., Holmlund, B. (Eds.), *Labor Market Policy and Unemployment Insurance*. Oxford Univ. Press, London.
- Bjorklund, A., Freeman, R.B., 1997. Generating equality and eliminating poverty, the Swedish way. In: Freeman, R.B., Topel, R., Swedenborg, B. (Eds.), *The Welfare State in Transition*. University of Chicago Press for NBER, Chicago, IL.

- Blinder, A.S. (Ed.), 1990. *Paying for Productivity: A Look at the Evidence*. The Brookings Institution, Washington, DC.
- Borjas, G.J., Freeman, R.B., Katz, L.F., 1997. How much do immigration and trade affect labor market outcomes? *Brookings Papers on Economic Activity*, Issue 1, pp. 1–90.
- Bruno, M., Sachs, J., 1985. *The Economics of Worldwide Stagflation*. Harvard Univ. Press, Cambridge.
- Calmfors, L., Driffill, J., 1988. Bargaining structure, corporatism and macroeconomic performance. *Economic Policy* (April), pp. 14–61.
- Card, D., 1996. The effect of unions on the structure of wages: A longitudinal analysis. *Econometrica* 64, 957–979.
- Card, D., Krueger, A., 1995. *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton Univ. Press, Princeton.
- Card, D., Kramarz, F., Lemieux, T., 1996. Changes in the relative structure of wages and employment: a comparison of the United States, Canada and France. National Bureau of Economic Research Working Paper Series No. 5487 (March).
- Coase, R.H., 1992. The institutional structure of production. *Am. Econ. Rev.* 82 (4), 713–719.
- DiNardo, J., Fortin, N.M., Lemieux, T., 1996. Labor market institutions and the distribution of wages, 1973–1992: A semiparametric approach. *Econometrica* 64 (5), 1001–1044.
- Dunlop, J., 1958. *Industrial Relations Systems*. Henry Holt, NY.
- Dunlop, J., Kerr, C., Harbison, F., Meyers, C., 1960. *Industrialism and Industrial Man*. Harvard Univ. Press, Cambridge, MA.
- Edin, P.-A., Holmlund, B., 1995. The Swedish wage structure: The rise and fall of solidarity wage policy. In: Freeman, R.B., Katz, L.F. (Eds.), *Differences and Changes in Wage Structures*. University of Chicago Press for NBER, Chicago, IL.
- EIU, 1997a. *Vehicle Manufacturers*.
- EIU, 1997b. *Motor Business Europe* (3rd quarter).
- Forslund, A., Krueger, A.B., 1997. An evaluation of the Swedish active labor market policy: New and received wisdom. In: Freeman, R.B., Topel, R., Swedenborg, B. (Eds.), *The Welfare State in Transition*. University of Chicago Press for NBER, Chicago, IL.
- Freeman, R.B., 1971. *The Market for College-Trained Manpower*. Harvard Univ. Press, Cambridge, MA.
- Freeman, R.B., 1982. Union wage practices and wage dispersion within establishments. *Ind. Labor Relations Rev.* 36 (1), 3–21.
- Freeman, R.B., 1984. Longitudinal analysis of the effect of trade unions. *J. Labor Econ.* 2 (1), 1–26.
- Freeman, R.B., 1988. Labour markets. *Economic Policy*, April, pp. 64–80.
- Freeman, R.B., 1995a. What will a 10% ... 50% ... 100% increase in the minimum wage do?. *Ind. Labor Relations Rev.* 48 (4), 830–834.
- Freeman, R.B., 1995b. The limits of wage flexibility to curing unemployment. *Oxford Rev. Econ. Policy* 11 (1).
- Freeman, R.B., 1996a. Does it fit? Drawing lessons from differing labour practices. In: Gual, J. (Ed.) *The Social Challenge of Job Creation: Combating Unemployment in Europe*. Edward Elgar, Cheltenham, UK.
- Freeman, R.B., 1996b. Why do so many young american men commit crimes and what might we do about it?. *J. Econ. Perspect.* 10 (1), 25–42.
- Freeman, R.B., 1998. Work-sharing to full employment: Serious option or populist fallacy? In: Freeman, R.B., Gottschalk, P. (Eds.), *Labor Demand Policies and Low-Skill Workers: Can Targeted Micro-Economic Policies Help Low-Paid Workers?*, Chap. 6. Russell Sage Foundation Press, NY (forthcoming).
- Freeman, R.B., Katz, L.F. (Eds.), 1995. *Differences and Changes in Wage Structures*. University of Chicago Press for NBER, Chicago, IL.
- Freeman, R.B., Medoff, J., 1984. *What Do Unions Do?* Basic Books, 1984, NY.

- Freeman, R.B., Pelletier, J., 1990. The impact of industrial relations legislation on British union density. *Br. J. Ind. Relations* 28 (2), 141–164.
- Grogger, J., 1994. Criminal opportunities, youth crime and young men's labor supply, mimeo. Department of Economics, University of California, Santa Barbara, February.
- Gruber, J., Wise, D., 1997. Social security programs and retirement around the world. National Bureau of Economic Research Working Paper Series No. 6134, August.
- Heckman, J., 1993. Assessing Clinton's program on job training, workfare and education in the workplace. National Bureau of Economic Research Working Paper Series No. 4428, August.
- Hibbs, D., 1990. Wage dispersion and trade union action in Sweden. In: Perrson, I. (Ed.), *Generating Equality in the Welfare State: the Swedish Experience*. Norwegian Univ. Press, Oslo, Norway.
- Hunt, J., 1996. Has work-shared worked in Germany? National Bureau of Economic Research Working Paper Series No. 5724, August.
- Ichniowski, C., Shaw, K., Prennush, G., 1997. The effect of human resource practices on productivity: A study of steel finishing lines. *Am. Econ. Rev.* 87 (3), 291–313.
- Industrial and Labor Relations Review, 1995. Review Symposium on Myth and Measurement: The New Economics of the Minimum Wage 48 (4) (July), 827–49.
- Juhn, C., Murphy, K.M., Topel, R., 1991. Why has the natural rate of unemployment increased over time?. *Brookings Papers Econ. Activity* 2, 75–142.
- Kahneman, D., Knetsch, J.L., Thaler, R., 1986. Fairness as a constraint on profit-seeking: Entitlements in the market. *Am. Econ. Rev.* 76 (4), 728–741.
- Katz, L.F., Meyer, B.D., 1990. Unemployment insurance, recall expectations, and unemployment outcomes. *Q. J. Econ.* 105, 973–1002.
- Katz, L.F., Murphy, K., 1992. Changes in relative wages, 1963–1987: Supply and demand factors. *Q. J. Econ.* 107, 35–78.
- Kim, D.-II, Topel, R.H., 1995. Labor markets and economic growth: Lessons from Korea's industrialization, 1970–1990. In: Freeman, R.B., Katz, L.F. (Eds.), *Differences and Changes in Wage Structures*. University of Chicago Press for NBER, Chicago, IL.
- Kruse, D., Blasi, J., 1995. Employee ownership, employee attitudes and firm performance. National Bureau of Economic Research Working Paper Series No. 5277, September.
- Lewis, H.G., 1963. *Unionism and Relative Wages in the United States: An Empirical Inquiry*. University of Chicago Press for the Workshop in Labor and Industrial Relations, Chicago, IL.
- Lindbeck, A., 1997. *The Swedish Experiment*. SNS (Studieförbundet Näringsliv och Sämhalle) Förlag, Stockholm, Sweden.
- Lynch, L. (Ed.), 1994. *Training and the Private Sector: International Comparisons*. University of Chicago Press for NBER, Chicago, IL.
- Manacordo, M., 1997. The evolution of male wage inequality in Italy and the escalator clause. London School of Economics, Centre for Economic Performance, August.
- Manski, C.F., Wise, D.A. (with contributions by Fuller, W.C., Venti, S.F.), 1983. *College Going in America*. Harvard Univ. Press, Cambridge, MA.
- McKinsey Global Institute, Report on Germany and France under the advisory committee of Robert Solow, Olivier Blanchard, Edmund Malinvaud and Hans Werner-Sinn.
- Milgrom, P., Roberts, J., 1995. Complementarities and fit: Strategy structure and organizational change in manufacturing, *April* 19 (2–3), pp. 179–208.
- Mishel, L., Voos, P.B. (Eds), 1992. *Unions and Economic Competitiveness*. M.E. Sharpe for Economic Policy Institute, Armonk, NY.
- North, D.C., 1991. Institutions. *J. Econ. Perspect.* 3 (1), 97–112.
- OECD, 1995. *Employment Outlook*. Paris, France, OECD, July.
- OECD, 1997. *Implementing the OECD Jobs Strategy: Lessons from Member Countries' Experience*. OECD, Paris, France.
- Riddell, W.C., 1993. Unionization in Canada and the United States: A tale of two countries. In: Card,

- D., Freeman, R.B. (Eds.), *Small Differences that Matter: Labor Markets and Income Maintenance in Canada and the United States*. University of Chicago Press for NBER, Chicago, IL.
- Rogers, J., Streeck, W. (Eds.), 1995. *Works Councils: Consultation, Representation and Cooperation in Industrial Relations*. University of Chicago Press for NBER, Chicago, IL.
- Schelling, T.C., 1978. *Micromotives and Macrobehavior*. Norton, NY.
- Simonian, H., 1997. *Financial Times* (August).
- Thaler, R.H., 1993. *Advances in Behavioral Finance*. Russell Sage Foundation, NY.
- Williamson, O.E., 1985. *The Economic Institution of Capitalism*. Free Press, NY.